

M67001.AR.006943
MCB CAMP LEJUENE
5090.3a

VALIDATED DATA PACKAGE, A407382, MCB CAMP LEJUENE NC
2/13/2015
ENVIRONMENTAL DATA SERVICES

ENVIRONMENTAL
Data Services, Inc.

**DATA VALIDATION SUMMARY REPORT
MCB CAMP LEJEUNE, NORTH CAROLINA**

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: A407382
Laboratory: Environmental Conservation Laboratories, Inc., Orlando, Florida
Site: MCB Camp Lejeune, LTM FY2015 Q1, Site 89, CTO-WE86
Date: February 13, 2015

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	IR89-EB-121114	A407382-01	Water
1RE	IR89-EB-121114RE	A407382-01RE1	Water
2	IR89-GW84-14D	A407382-02	Water
2RE	IR89-GW84-14DRE	A407382-02RE1	Water
3	IR89-GW84IW-14D	A407382-03	Water
3MS	IR89-GW84IW-14DMS	A407382-03MS	Water
3MSD	IR89-GW84IW-14DMSD	A407382-03MSD	Water
4	IR89-GW21-14D	A407382-04	Water
4RE	IR89-GW21-14DRE	A407382-04	Water
5	IR89-GW21IW-14D	A407382-05	Water
5RE	IR89-GW21IW-14DRE	A407382-05RE1	Water
6	IR89-GW70-14D	A407382-06	Water
6RE	IR89-GW70-14DRE	A407382-06RE1	Water
7	IR89-GW70IW-14D	A407382-07	Water
8	IR89-GW31IW-14D	A407382-08	Water
9	IR89-GW31IWD-14D	A407382-09	Water
10	IR89-GW16IW-14D	A407382-10	Water
11	IR89-GW56IW-14D	A407382-11	Water
12	IR89-GW82IW-14D	A407382-12	Water
12RE	IR89-GW82IW-14DRE	A407382-12RE1	Water
13	IR89-GW82-14D	A407382-13	Water
13RE	IR89-GW82-14DRE	A407382-13RE1	Water
14	IR89-GW81IW-14D	A407382-14	Water
15	IR89-GW81IWD-14D	A407382-15	Water
16	IR89-GW81-14D	A407382-16	Water
16RE	IR89-GW81-14DRE	A407382-16RE1	Water
17	IR89-GW13-14D	A407382-17	Water
17MS	IR89-GW13-14DMS	A407382-17MS	Water
17MSD	IR89-GW13-14DMSD	A407382-17MSD	Water
17RE	IR89-GW13-14DRE	A407382-17RE1	Water
18	IR89-GW53IW-14D	A407382-18	Water
18RE	IR89-GW53IW-14DRE	A407382-18RE1	Water
19	IR89-GW83IW-14D	A407382-19	Water
19MS	IR89-GW83IW-14DMS	A407382-19MS	Water
19MSD	IR89-GW83IW-14DMSD	A407382-19MSD	Water
20	IR89-GW08-14D	A407382-20	Water

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
21	IR89-GW55IW-14D	A407382-21	Water
22	IR89-TB-121114	A407382-22	Water

A full data validation was performed on the analytical data for twenty water samples, one aqueous equipment blank sample, and one aqueous trip blank sample collected on December 11, 2014 by CH2M HILL at MCB Camp Lejeune in North Carolina. The samples were analyzed under the Environmental Protection Agency (USEPA) "Test Methods for the Evaluation of Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions".

Specific method references are as follows:

Analysis
VOCs

Method References
USEPA SW-846 Method 8260B

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

Organics

- Holding times and sample preservation
- Gas Chromatography/Mass Spectroscopy (GC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample (LCS) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Tentatively Identified Compounds (TICs)
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Overall Usability Issues:

There were no rejections of data. Overall the data is acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

Volatile Organic Compounds (VOC)

Holding Times

- All samples were analyzed within 7 days for unpreserved water samples and 14 days for preserved water samples except the following.

Sample	Date Sampled	Date Analyzed	# of Days	Qualifier
1RE	12/11/14	12/29/14	18	J/UJ
2RE	12/11/14	01/05/15	25	J/UJ
4RE	12/11/14	12/29/14	18	J/UJ
5RE	12/11/14	12/29/14	18	J/UJ
6RE	12/11/14	12/29/14	18	J/UJ
12RE	12/11/14	12/29/14	18	J/UJ
13RE	12/11/14	12/29/14	18	J/UJ
16RE	12/11/14	12/29/14	18	J/UJ
17RE	12/11/14	01/05/15	25	J/UJ

GC/MS Tuning

- All criteria were met.

Initial Calibration

- All %RSD and/or correlation coefficients and mean RRF criteria were met.

Continuing Calibration

- All %D and RRF criteria were met except the following.

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
12/18/14 (0502)	1,1,2,2-Tetrachloroethane	38.2%	J/UJ	16, 18, 21, 22

Method Blank

- The method blanks were free of contamination.

Field Blank

- Field QC results are summarized below.

Blank ID	Compound	Conc. ug/L	Qualifier	Affected Samples
IR89-EB-121114	None - ND	-	-	-
IR89-EB-121114RE	None - ND	-	-	-
IR89-TB-121114	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values except the following.

Sample ID	Surrogate	%R	Qualifier
1	Toluene-d8	88%	J/UJ - All Results
1RE	Dibromofluoromethane	137%	None - See HT
	4-Bromofluorobenzene	115%	
5	Toluene-d8	84%	J/UJ - All Results
	Dibromofluoromethane	137%	
5RE	Toluene-d8	116%	None - See HT
	Dibromofluoromethane	137%	
6	Dibromofluoromethane	135%	J - Positive Results
	Toluene-d8	128%	
	4-Bromofluorobenzene	127%	
6RE	Toluene-d8	80%	None - See HT
10	Dibromofluoromethane	140%	None - ND
	Toluene-d8	123%	
	4-Bromofluorobenzene	133%	
11	Dibromofluoromethane	130%	J - Positive Results
	Toluene-d8	114%	
	4-Bromofluorobenzene	120%	
12RE	Toluene-d8	73%	None - See HT
13RE	Toluene-d8	80%	None - See HT
17	Toluene-d8	115%	J - Positive Results
20	Dibromofluoromethane	121%	J - Positive Results

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD sample exhibited acceptable %R and RPD values except the following.

MS/MSD Sample ID	Compound	MS %R/MSD %R/ RPD	Qualifier
3	Vinyl chloride	OK/OK/24	None for RPD Alone
	trans-1,2-Dichloroethene	OK/OK/26	
	cis-1,2-Dichloroethene	OK/OK/27	
	Trichloroethene	OK/OK/23	
	1,1,2-Trichloroethane	OK/124%/29	None - Sample ND
	Tetrachloroethene	OK/134%/29	
	1,1,2,2-Tetrachloroethane	OK/124%/27	
19	trans-1,2-Dichloroethene	64%/59%/OK	J/UJ
	cis-1,2-Dichloroethene	-6%/-14%/OK	J/R

MS/MSD Sample ID	Compound	MS %R/MSD %R/ RPD	Qualifier
19 (cont.)	Trichloroethene	-115%/-130%/OK	J/R
	1,1,2-Trichloroethane	OK/76%/OK	J/UJ
17	Vinyl chloride	158%/164%/OK	J
	cis-1,2-Dichloroethene	159%/215%/OK	None - Dilution Results Used
	Trichloroethene	50%/73%/OK	None - Dilution Results Used

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries (%R) except the following.

LCS ID	Compound	%R	Qualifier	Affected Samples
4L17038-BS1	Vinyl chloride	140%	J	2, 12, 13
4L18024-BS1	Vinyl chloride	138%	J	16, 18
4L29007-BS1	trans-1,2-Dichloroethene	125%	None	All Associated ND

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- Several samples exhibited high concentrations of target compounds over the instrument calibration range and were flagged (E) by the laboratory. The samples were diluted and reanalyzed outside of holding times. The dilution results for these compounds should be used for reporting purposes.
- Several samples were reanalyzed outside holding time due to surrogate, MS/MSD, and/or LCS deficiencies. See Form Is for which results to use for reporting purposes.

Tentatively Identified Compounds (TICs)

- TICs were not reported.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

VOCs				
Compound	IR89-GW31IW-14D ug/L	IR89-GW31IWD-14D ug/L	RPD	Qualifier
trans-1,2-Dichloroethene	2.5	2.5	0%	None
cis-1,2-Dichloroethene	190	190	0%	
Trichloroethene	44	43	2%	
Tetrachloroethene	0.77	0.81	5%	

VOCs				
Compound	IR89-GW81IW-14D ug/L	IR89-GW81IWD-14D ug/L	RPD	Qualifier
trans-1,2-Dichloroethene	1.2	1.2	0%	None
cis-1,2-Dichloroethene	36	37	3%	
Trichloroethene	32	34	6%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Dated: 2/17/15

Nancy Weaver
Senior Chemist

Data Qualifiers

- U = The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
- UJ = The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
- J+ = The result is an estimated quantity, but the result may be biased high.
- J- = The result is an estimated quantity, but the result may be biased low.
- R = The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

ORGANIC ANALYSIS DATA SHEET

IR89-EB-121114

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-01 File ID: ILL027.D
 Sampled: 12/11/14 08:30 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 20:32
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL
 Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: QVGCMs1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	SSL	1	<1.0 UJ	UQ	0.71	1.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	<1.0	U	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	49	98	80 - 119	
Toluene-d8	50.0	44	88	89 - 112	*
4-Bromofluorobenzene	50.0	47	94	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	126813	11.45	135878	11.46	
1,4-Difluorobenzene	212323	12.03	221153	12.03	
Chlorobenzene-d5	179442	14.71	191390	14.71	
1,4-Dichlorobenzene-d4	70519	17.08	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-EB-121114

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86

Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-01RE1 File ID: 2LX007.D

Sampled: 12/11/14 08:30 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 07:50

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L29007 Sequence: AA31927 Calibration: 1412083 Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	HT	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	UQ	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	<1.0	UQ	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	UQ	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	69	137	80 - 119	*
Toluene-d8	50.0	57	115	89 - 112	*
4-Bromofluorobenzene	50.0	50	101	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	356847	10.98	460789	10.98	
1,4-Difluorobenzene	725322	11.55	805842	11.56	
Chlorobenzene-d5	729523	14.23	708168	14.23	
1,4-Dichlorobenzene-d4	325319	16.5	312852	16.5	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW84-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-02 File ID: ILL028.D

Sampled: 12/11/14 09:25 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 21:01

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride BSH	1	5.7 T	X	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	6.3		0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	44		0.53	1.0	2.0
79-01-6	Trichloroethene HT	10 T	390 430 T	E	8.9089	10 1.0	20 2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	6.3		0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	51	101	80 - 119	
Toluene-d8	50.0	53	105	89 - 112	
4-Bromofluorobenzene	50.0	49	98	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	126713	11.45	135878	11.46	
1,4-Difluorobenzene	186475	12.02	221153	12.03	
Chlorobenzene-d5	180445	14.71	191390	14.71	
1,4-Dichlorobenzene-d4	71474	17.08	82213	17.08	

* Values outside of QC limits

Rev 2/3/15

ORGANIC ANALYSIS DATA SHEET

IR89-GW84-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-02RE1 File ID: 2A5013.D
 Sampled: 12/11/14 09:25 Prepared: 01/05/15 00:00 Analyzed: 01/05/15 13:02

Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 5A05005 Sequence: AA32007 Calibration: 1501002 Instrument: OVGCMS2

use original results

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	HT	10	<10 MJ	UDQ	7.1	10	20
156-60-5	trans-1,2-Dichloroethene		10	7.6 J	DDQ	7.3	10	20
156-59-2	cis-1,2-Dichloroethene		10	50 J	DDQ	5.3	10	20
79-01-6	Trichloroethene		10	390 J	DDQ	8.9	10	20
79-00-5	1,1,2-Trichloroethane		10	<10 MJ	UDQ	7.6	10	20
127-18-4	Tetrachloroethene		10	<10	UDQ	7.6	10	20
79-34-5	1,1,2,2-Tetrachloroethane		10	<10	UDQ	5.4	10	20

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	47	94	80 - 119	
Toluene-d8	50.0	45	91	89 - 112	
4-Bromofluorobenzene	50.0	49	97	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	393330	10.97	270652	10.97	
1,4-Difluorobenzene	707088	11.54	508133	11.55	
Chlorobenzene-d5	616868	14.22	626993	14.22	
1,4-Dichlorobenzene-d4	268113	16.48	274662	16.5	

* Values outside of QC limits

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ORGANIC ANALYSIS DATA SHEET

IR89-GW84IW-14D
3

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-03 File ID: 1LL029.D

Sampled: 12/11/14 09:40 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 21:29

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	UQ	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	<1.0	UQ	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	UQ	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	49	99	80 - 119	
Toluene-d8	50.0	44	89	89 - 112	
4-Bromofluorobenzene	50.0	47	94	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	127432	11.45	135878	11.46	
1,4-Difluorobenzene	212498	12.02	221153	12.03	
Chlorobenzene-d5	180793	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	71181	17.09	82213	17.08	

* Values outside of QC limits

11315

ORGANIC ANALYSIS DATA SHEET

IR89-GW21-14D
4

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-04 File ID: 1LL030.D
 Sampled: 12/11/14 10:05 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 21:58
 Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL
 Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	H _T	210 240 J	EQ	0.71 7.1	+0 10	2.0 20
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	4.6		0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	53	106	80 - 119	
Toluene-d8	50.0	48	97	89 - 112	
4-Bromofluorobenzene	50.0	50	99	85 - 114	
INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	120889	11.45	135878	11.46	
1,4-Difluorobenzene	200359	12.02	221153	12.03	
Chlorobenzene-d5	173944	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	68012	17.09	82213	17.08	

* Values outside of QC limits

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4RE

ORGANIC ANALYSIS DATA SHEET

IR89-GW21-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-04RE1 File ID: 3LX009.D
 Sampled: 12/11/14 10:05 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 11:04
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL
 Batch: 4L29023 Sequence: AA31933 Calibration: 1412094 Instrument: OVGCM3

Use original results

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	HT	10	210	7.1	10	20	
156-60-5	trans-1,2-Dichloroethene		10	<10	UDQ	7.3	10	20
156-59-2	cis-1,2-Dichloroethene		10	<10	UDQ	5.3	10	20
79-01-6	Trichloroethene		10	<10	UDQ	8.9	10	20
79-00-5	1,1,2-Trichloroethane		10	<10	UDQ	7.6	10	20
127-18-4	Tetrachloroethene		10	<10	UDQ	7.6	10	20
79-34-5	1,1,2,2-Tetrachloroethane		10	<10	UDQ	5.4	10	20

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	50	101	80 - 119	
Toluene-d8	50.0	44	89	89 - 112	
4-Bromofluorobenzene	50.0	50	101	85 - 114	
INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	361931	10.92	357624	10.92	
1,4-Difluorobenzene	456938	11.5	483710	11.5	
Chlorobenzene-d5	432821	14.17	432556	14.18	
1,4-Dichlorobenzene-d4	232055	16.42	238685	16.42	

* Values outside of QC limits

MM 21315

ORGANIC ANALYSIS DATA SHEET

IR89-GW21IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-05 File ID: ILL031.D

Sampled: 12/11/14 10:20 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 22:26

Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	SSL	1	<1.0 UJ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0 UJ	0.73	1.0	2.0	
156-59-2	cis-1,2-Dichloroethene	1	0.74 J	0.53	1.0	2.0	
79-01-6	Trichloroethene	1	<1.0 UJ	0.89	1.0	2.0	
79-00-5	1,1,2-Trichloroethane	1	<1.0 UJ	0.76	1.0	2.0	
127-18-4	Tetrachloroethene	1	<1.0 UJ	0.76	1.0	2.0	
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0 UJ	0.54	1.0	2.0	

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	49	98	80 - 119	
Toluene-d8	50.0	42	84	89 - 112	*
4-Bromofluorobenzene	50.0	45	90	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	128258	11.45	135878	11.46	
1,4-Difluorobenzene	216942	12.02	221153	12.03	
Chlorobenzene-d5	184525	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	72712	17.08	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW21IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86

Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-05RE1 File ID: 2LX008.D

Sampled: 12/11/14 10:20 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 08:19

Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L29007 Sequence: AA31927 Calibration: 1412083 Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	HT	<1.0 uJ	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0 uJ	UQ	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	1.0 J	UQ	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0 uJ	UQ	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	68	137	80 - 119	*
Toluene-d8	50.0	58	116	89 - 112	*
4-Bromofluorobenzene	50.0	50	100	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	356362	10.98	460789	10.98	
1,4-Difluorobenzene	714630	11.56	805842	11.56	
Chlorobenzene-d5	722193	14.23	708168	14.23	
1,4-Dichlorobenzene-d4	329816	16.5	312852	16.5	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW70-14D
6

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-06 File ID: ILL032.D

Sampled: 12/11/14 10:35 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 22:55

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	SSH	1	0.82 ✓	✓	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0	
156-59-2	cis-1,2-Dichloroethene	SSH	1	1.6 ✓	✗	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0	
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0	
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0	
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0	

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	68	135	80 - 119	*
Toluene-d8	50.0	64	128	89 - 112	*
4-Bromofluorobenzene	50.0	63	127	85 - 114	*

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	90205	11.45	135878	11.46	
1,4-Difluorobenzene	144052	12.02	221153	12.03	
Chlorobenzene-d5	127493	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	51626	17.09	82213	17.08	

* Values outside of QC limits

~w 21315

ORGANIC ANALYSIS DATA SHEET

IR89-GW70-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-06RE1 File ID: 3LX010.D
 Sampled: 12/11/14 10:35 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 11:34
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL
 Batch: 4L29023 Sequence: AA31933 Calibration: 1412094 Instrument: OVGCMS3

use original results

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	HT	<1.0 UJ	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0 UJ	UQ	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	0.88 J	JQ	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0 UJ	UQ	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0 UJ	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0 UJ	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0 UJ	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	48	96	80 - 119	
Toluene-d8	50.0	40	80	89 - 112	*
4-Bromofluorobenzene	50.0	47	94	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	353527	10.93	357624	10.92	
1,4-Difluorobenzene	473771	11.51	483710	11.5	
Chlorobenzene-d5	433837	14.18	432556	14.18	
1,4-Dichlorobenzene-d4	237988	16.44	238685	16.42	

* Values outside of QC limits

mw 2/13/15

ORGANIC ANALYSIS DATA SHEET

IR89-GW70IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-07 File ID: ILL033.D

Sampled: 12/11/14 10:55 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 23:23

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	<1.0	U	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	48	97	80 - 119	
Toluene-d8	50.0	45	90	89 - 112	
4-Bromofluorobenzene	50.0	45	90	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	119207	11.45	135878	11.46	
1,4-Difluorobenzene	195628	12.03	221153	12.03	
Chlorobenzene-d5	169689	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	66335	17.09	82213	17.08	

* Values outside of QC limits

mw 21,315

ORGANIC ANALYSIS DATA SHEET

IR89-GW31IW-14D
8

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-08 File ID: 1LL034.D

Sampled: 12/11/14 11:20 Prepared: 12/17/14 00:00 Analyzed: 12/17/14 23:52

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	2.5		0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	190		0.53	1.0	2.0
79-01-6	Trichloroethene	1	44		0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	0.77	J	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	51	102	80 - 119	
Toluene-d8	50.0	46	92	89 - 112	
4-Bromofluorobenzene	50.0	50	99	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	120066	11.45	135878	11.46	
1,4-Difluorobenzene	194943	12.03	221153	12.03	
Chlorobenzene-d5	167126	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	60403	17.09	82213	17.08	

* Values outside of QC limits

~ 2/3/15

ORGANIC ANALYSIS DATA SHEET

IR89-GW31IWD-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-09 File ID: ILL035.D

Sampled: 12/11/14 11:25 Prepared: 12/17/14 00:00 Analyzed: 12/18/14 00:21

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	2.5		0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	190		0.53	1.0	2.0
79-01-6	Trichloroethene	1	43		0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	0.81	J	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	51	101	80 - 119	
Toluene-d8	50.0	46	92	89 - 112	
4-Bromofluorobenzene	50.0	48	95	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	119629	11.45	135878	11.46	
1,4-Difluorobenzene	192950	12.03	221153	12.03	
Chlorobenzene-d5	170220	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	66776	17.09	82213	17.08	

* Values outside of QC limits

10

ORGANIC ANALYSIS DATA SHEET
EPA 8260B

IR89-GW16IW-14D

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-10 File ID: ILL036.D
 Sampled: 12/11/14 11:40 Prepared: 12/17/14 00:00 Analyzed: 12/18/14 00:49
 Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL
 Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	<1.0	U	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	70	140	80 - 119	*
Toluene-d8	50.0	61	123	89 - 112	*
4-Bromofluorobenzene	50.0	66	133	85 - 114	*

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	85021	11.45	135878	11.46	
1,4-Difluorobenzene	144652	12.03	221153	12.03	
Chlorobenzene-d5	121181	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	48843	17.09	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW56IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-11 File ID: 1LL037.D
 Sampled: 12/11/14 12:00 Prepared: 12/17/14 00:00 Analyzed: 12/18/14 01:18
 Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL
 Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	U	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	SSH	1.3	J	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	65	130	80 - 119	*
Toluene-d8	50.0	57	114	89 - 112	*
4-Bromofluorobenzene	50.0	60	120	85 - 114	*

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	86446	11.45	135878	11.46	
1,4-Difluorobenzene	145461	12.03	221153	12.03	
Chlorobenzene-d5	124994	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	47749	17.09	82213	17.08	

* Values outside of QC limits

mw z 1,315

ORGANIC ANALYSIS DATA SHEET
EPA 8260B

IR89-GW82IW-14D

Laboratory:	<u>ENCO Orlando</u>	SDG:	<u>A407382-CTO-WE86</u>
Client:	<u>CH2M Hill, Inc. (CH025)</u>	Project:	<u>CTO-WE86 MCB Camp Lejeune Site 89</u>
Matrix:	<u>Ground Water</u>	Laboratory ID:	<u>A407382-12</u>
Sampled:	<u>12/11/14 13:35</u>	Prepared:	<u>12/17/14 00:00</u>
Solids:		Preparation:	<u>EPA 5030B_MS</u>
Batch:	<u>4L17038</u>	Sequence:	<u>AA31774</u>
		Calibration:	<u>1412038</u>
		Instrument:	<u>OVGCMS1</u>

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	BSH	1	0.72 J	10	0.71	1.0
156-60-5	trans-1,2-Dichloroethene		1	<1.0	U	0.73	1.0
156-59-2	cis-1,2-Dichloroethene		1	6.1		0.53	1.0
79-01-6	Trichloroethene		1	2.0		0.89	1.0
79-00-5	1,1,2-Trichloroethane		1	<1.0	U	0.76	1.0
127-18-4	Tetrachloroethene		1	<1.0	U	0.76	1.0
79-34-5	1,1,2,2-Tetrachloroethane		1	<1.0	U	0.54	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	52	104	80 - 119	
Toluene-d8	50.0	47	93	89 - 112	
4-Bromofluorobenzene	50.0	48	96	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	112355	11.45	135878	11.46	
1,4-Difluorobenzene	185597	12.02	221153	12.03	
Chlorobenzene-d5	162024	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	62581	17.09	82213	17.08	

* Values outside of QC limits

WZL315

ORGANIC ANALYSIS DATA SHEET

IR89-GW82IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86

Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-12RE1 File ID: 3LX011.D

Sampled: 12/11/14 13:35 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 12:03

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L29023 Sequence: AA31933 Calibration: 1412094 Instrument: OVGCMSS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	HT	1	<1.0 UJ	UQ	0.71	1.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0 UJ	UQ	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	8.1 J	Q	0.53	1.0	2.0
79-01-6	Trichloroethene	1	4.0 J	Q	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0 UJ	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	50	99	80 - 119	
Toluene-d8	50.0	37	73	89 - 112	*
4-Bromofluorobenzene	50.0	48	96	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	350925	10.92	357624	10.92	
1,4-Difluorobenzene	505145	11.49	483710	11.5	
Chlorobenzene-d5	445717	14.16	432556	14.18	
1,4-Dichlorobenzene-d4	232039	16.42	238685	16.42	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW82-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-13 File ID: ILL039.D
 Sampled: 12/11/14 13:50 Prepared: 12/17/14 00:00 Analyzed: 12/18/14 02:16
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL
 Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	BSH	1	4.8 J	X	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	3.6		0.73	1.0	2.0	
156-59-2	cis-1,2-Dichloroethene	1	87		0.53	1.0	2.0	
79-01-6	Trichloroethene	1	16		0.89	1.0	2.0	
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0	
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0	
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0	

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	53	105	80 - 119	
Toluene-d8	50.0	47	95	89 - 112	
4-Bromofluorobenzene	50.0	47	95	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	111411	11.45	135878	11.46	
1,4-Difluorobenzene	177153	12.03	221153	12.03	
Chlorobenzene-d5	160826	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	60621	17.09	82213	17.08	

* Values outside of QC limits

mz1315

ORGANIC ANALYSIS DATA SHEET

IR89-GW82-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-13RE1 File ID: 3LX012.D
 Sampled: 12/11/14 13:50 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 12:33
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L29023 Sequence: AA31933 Calibration: 1412094 Instrument: OVGCMS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	HT	1	4.2	Q	0.71	1.0
156-60-5	trans-1,2-Dichloroethene	1	3.5	Q	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	76	Q	0.53	1.0	2.0
79-01-6	Trichloroethene	1	15	Q	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0 uJ	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	46	93	80 - 119	
Toluene-d8	50.0	40	80	89 - 112	*
4-Bromofluorobenzene	50.0	46	91	85 - 114	
INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	364074	10.92	357624	10.92	
1,4-Difluorobenzene	470150	11.49	483710	11.5	
Chlorobenzene-d5	446217	14.17	432556	14.18	
1,4-Dichlorobenzene-d4	241199	16.42	238685	16.42	

* Values outside of QC limits

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ORGANIC ANALYSIS DATA SHEET

IR89-GW81IW-14D
14

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-14 File ID: 1LL040.D
 Sampled: 12/11/14 14:05 Prepared: 12/17/14 00:00 Analyzed: 12/18/14 02:44
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	1.2	J	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	36		0.53	1.0	2.0
79-01-6	Trichloroethene	1	32		0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	53	105	80 - 119	
Toluene-d8	50.0	47	93	89 - 112	
4-Bromofluorobenzene	50.0	47	94	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	112285	11.46	135878	11.46	
1,4-Difluorobenzene	177883	12.03	221153	12.03	
Chlorobenzene-d5	158637	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	61583	17.09	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW81IWD-14D
15

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-15 File ID: ILL041.D

Sampled: 12/11/14 14:10 Prepared: 12/17/14 00:00 Analyzed: 12/18/14 03:13

Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L17038 Sequence: AA31774 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	1.2	J	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	37		0.53	1.0	2.0
79-01-6	Trichloroethene	1	34		0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	U	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	53	105	80 - 119	
Toluene-d8	50.0	47	93	89 - 112	
4-Bromofluorobenzene	50.0	50	101	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	108081	11.46	135878	11.46	
1,4-Difluorobenzene	172852	12.03	221153	12.03	
Chlorobenzene-d5	151324	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	59767	17.09	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW81-14D
16

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-16 File ID: 3LM007.D

Sampled: 12/11/14 14:15 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 07:42

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L18024 Sequence: AA31792 Calibration: 1410074 Instrument: OVGCMS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	BSH	1	3.2 J	Q	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene		1	4.2		0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene		1	52		0.53	1.0	2.0
79-01-6	Trichloroethene		1	140		0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane		1	<1.0	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene		1	0.97	J	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	CCN	1	<1.0 UJ	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	54	108	80 - 119	
Toluene-d8	50.0	52	103	89 - 112	
4-Bromofluorobenzene	50.0	50	99	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	393285	10.92	379991	10.93	
1,4-Difluorobenzene	598636	11.49	504214	11.51	
Chlorobenzene-d5	615887	14.17	534272	14.18	
1,4-Dichlorobenzene-d4	321425	16.42	285596	16.43	

* Values outside of QC limits

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16RE

**ORGANIC ANALYSIS DATA SHEET
EPA 8260B**

IR89-GW81-14D

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-16RE1 File ID: 3LX013.D
 Sampled: 12/11/14 14:15 Prepared: 12/29/14 00:00 Analyzed: 12/29/14 13:02
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L29023 Sequence: AA31933 Calibration: 1412094 Instrument: OVGCMS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	HT	1.5	JQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	3.6	Q	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	36	Q	0.53	1.0	2.0
79-01-6	Trichloroethene	1	130	Q	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	UJ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	0.96	JQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UJ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	49	98	80 - 119	
Toluene-d8	50.0	46	92	89 - 112	
4-Bromofluorobenzene	50.0	48	95	85 - 114	
INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	351152	10.92	357624	10.92	
1,4-Difluorobenzene	427671	11.5	483710	11.5	
Chlorobenzene-d5	456658	14.17	432556	14.18	
1,4-Dichlorobenzene-d4	243356	16.42	238685	16.42	

* Values outside of QC limits

MW 213/15

ORGANIC ANALYSIS DATA SHEET

IR89-GW13-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-17 File ID: 3LM006.D

Sampled: 12/11/14 14:40 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 07:12

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L18024 Sequence: AA31792 Calibration: 1410074 Instrument: OVGCMS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	MSH	1	3.0 J	X	0.71	1.0
156-60-5	trans-1,2-Dichloroethene	SSH	1	120 J		0.73	1.0
156-59-2	cis-1,2-Dichloroethene	HT	1/10	370 400 J	EQ	0.5353	10/10
79-01-6	Trichloroethene	HT	1/10	290 290 J	EQ	0.8989	10/10
79-00-5	1,1,2-Trichloroethane	SSH	1	1.8 J	EQ	0.76	1.0
127-18-4	Tetrachloroethene		1	3.6 J		0.76	1.0
79-34-5	1,1,2,2-Tetrachloroethane	↓	1	11 ↓	X	0.54	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	52	104	80 - 119	
Toluene-d8	50.0	57	115	89 - 112	*
4-Bromofluorobenzene	50.0	50	100	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	415525	10.91	379991	10.93	
1,4-Difluorobenzene	548758	11.49	504214	11.51	
Chlorobenzene-d5	607908	14.17	534272	14.18	
1,4-Dichlorobenzene-d4	321077	16.42	285596	16.43	

* Values outside of QC limits

MZ 131.5

ORGANIC ANALYSIS DATA SHEET

IR89-GW13-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86

Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-17RE1

Sampled: 12/11/14 14:40 Prepared: 01/05/15 00:00

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 5A05005 Sequence: AA32007 Calibration: 1501002 Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	HT	10	<10 UJ	UDQ	7.1	10	20
156-60-5	trans-1,2-Dichloroethene		10	96 J	DQ	7.3	10	20
156-59-2	cis-1,2-Dichloroethene		10	370 J	DQ	5.3	10	20
79-01-6	Trichloroethene		10	290 J	DQ	8.9	10	20
79-00-5	1,1,2-Trichloroethane		10	<10 UJ	UDQ	7.6	10	20
127-18-4	Tetrachloroethene		10	<10 UJ	UDQ	7.6	10	20
79-34-5	1,1,2,2-Tetrachloroethane		10	11 J	DQ	5.4	10	20

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	48	96	80 - 119	
Toluene-d8	50.0	46	92	89 - 112	
4-Bromofluorobenzene	50.0	48	96	85 - 114	
INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	390098	10.97	270652	10.97	
1,4-Difluorobenzene	708838	11.54	508133	11.55	
Chlorobenzene-d5	624312	14.22	626993	14.22	
1,4-Dichlorobenzene-d4	263738	16.49	274662	16.5	

* Values outside of QC limits.

Nov 21, 2015

ORGANIC ANALYSIS DATA SHEET

IR89-GW53IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-18 File ID: 3LM020.D
 Sampled: 12/11/14 15:05 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 14:06
 Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL
 Batch: 4L18024 Sequence: AA31792 Calibration: 1410074 Instrument: OVGCMS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	B5H	1	1.5 J	JQ	0.71	1.0
156-60-5	trans-1,2-Dichloroethene		1	<1.0	U	0.73	1.0
156-59-2	cis-1,2-Dichloroethene		1	24		0.53	1.0
79-01-6	Trichloroethene		1	1.4	J	0.89	1.0
79-00-5	1,1,2-Trichloroethane		1	<1.0	UQ	0.76	1.0
127-18-4	Tetrachloroethene		1	<1.0	U	0.76	1.0
79-34-5	1,1,2,2-Tetrachloroethane	CCH	1	0.90 J	10	0.54	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	53	106	80 - 119	
Toluene-d8	50.0	45	90	89 - 112	
4-Bromofluorobenzene	50.0	47	94	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	402071	10.92	379991	10.93	
1,4-Difluorobenzene	658416	11.49	504214	11.51	
Chlorobenzene-d5	628439	14.17	534272	14.18	
1,4-Dichlorobenzene-d4	320547	16.42	285596	16.43	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW53IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86

Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-18RE1 File ID: 1LN007.D

Sampled: 12/11/14 15:05 Prepared: 12/19/14 00:00 Analyzed: 12/19/14 07:31

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L19007 Sequence: AA31809 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	1.4	Q	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	UQ	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	38	Q	0.53	1.0	2.0
79-01-6	Trichloroethene	1	2.4	Q	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	UQ	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	1	<1.0	UQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	58	116	80 - 119	
Toluene-d8	50.0	54	108	89 - 112	
4-Bromofluorobenzene	50.0	55	111	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	112573	11.46	135878	11.46	
1,4-Difluorobenzene	181502	12.03	221153	12.03	
Chlorobenzene-d5	160368	14.71	191390	14.71	
1,4-Dichlorobenzene-d4	60640	17.09	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW83IW-14D

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89
 Matrix: Ground Water Laboratory ID: A407382-19 File ID: ILM007.D
 Sampled: 12/11/14 15:25 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 08:03
 Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL
 Batch: 4L18011 Sequence: AA31784 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	1	<1.0	U	0.71	1.0	2.0	
156-60-5	trans-1,2-Dichloroethene	MSL	2.1 J	X	0.73	1.0	2.0	
156-59-2	cis-1,2-Dichloroethene	MSL	39 J	X	0.53	1.0	2.0	
79-01-6	Trichloroethene	MSL	72 J	X	0.89	1.0	2.0	
79-00-5	1,1,2-Trichloroethane	MSL	<1.0 UJ	UC	0.76	1.0	2.0	
127-18-4	Tetrachloroethene		1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane		1	<1.0	U	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	53	107	80 - 119	
Toluene-d8	50.0	48	96	89 - 112	
4-Bromofluorobenzene	50.0	50	100	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	142182	11.46	135878	11.46	
1,4-Difluorobenzene	236938	12.03	221153	12.03	
Chlorobenzene-d5	204818	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	79582	17.09	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW08-14D
20

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-20 File ID: ILM008.D

Sampled: 12/11/14 15:40 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 08:31

Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL

Batch: 4L18011 Sequence: AA31784 Calibration: 1412038 Instrument: OVGCMS1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	U	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	SSH	7.0 J		0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	↓	62		0.53	1.0	2.0
79-01-6	Trichloroethene	1	50		0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	↓	2.0		0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	SSH	74 J		0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	60	121	80 - 119	*
Toluene-d8	50.0	55	109	89 - 112	
4-Bromofluorobenzene	50.0	56	113	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	121201	11.46	135878	11.46	
1,4-Difluorobenzene	197394	12.03	221153	12.03	
Chlorobenzene-d5	169073	14.7	191390	14.71	
1,4-Dichlorobenzene-d4	67487	17.08	82213	17.08	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET

IR89-GW55IW-14D
21

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-21 File ID: 3LM008.D
 Sampled: 12/11/14 16:05 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 08:11
 Solids: Preparation: EPA 5030B MS Initial/Final: 5 mL / 5 mL
 Batch: 4L18024 Sequence: AA31792 Calibration: 1410074 Instrument: OVGCM3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0	
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0	
156-59-2	cis-1,2-Dichloroethene	1	2.8		0.53	1.0	2.0	
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0	
79-00-5	1,1,2-Trichloroethane	1	<1.0	UQ	0.76	1.0	2.0	
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0	
79-34-5	1,1,2,2-Tetrachloroethane	C4H	1	<1.0 WJ	XQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	56	111	80 - 119	
Toluene-d8	50.0	51	103	89 - 112	
4-Bromofluorobenzene	50.0	51	102	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	396933	10.92	379991	10.93	
1,4-Difluorobenzene	612778	11.5	504214	11.51	
Chlorobenzene-d5	611883	14.17	534272	14.18	
1,4-Dichlorobenzene-d4	335553	16.42	285596	16.43	

* Values outside of QC limits

Rev 2/13/15

ORGANIC ANALYSIS DATA SHEET

IR89-TB-121114
22

EPA 8260B

Laboratory: ENCO Orlando SDG: A407382-CTO-WE86
 Client: CH2M Hill, Inc. (CH025) Project: CTO-WE86 MCB Camp Lejeune Site 89

Matrix: Ground Water Laboratory ID: A407382-22 File ID: 3LM009.D
 Sampled: 12/11/14 16:45 Prepared: 12/18/14 00:00 Analyzed: 12/18/14 08:41
 Solids: Preparation: EPA 5030B_MS Initial/Final: 5 mL / 5 mL

Batch: 4L18024 Sequence: AA31792 Calibration: 1410074 Instrument: OVGCMS3

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
75-01-4	Vinyl chloride	1	<1.0	UQ	0.71	1.0	2.0
156-60-5	trans-1,2-Dichloroethene	1	<1.0	U	0.73	1.0	2.0
156-59-2	cis-1,2-Dichloroethene	1	<1.0	U	0.53	1.0	2.0
79-01-6	Trichloroethene	1	<1.0	U	0.89	1.0	2.0
79-00-5	1,1,2-Trichloroethane	1	<1.0	UQ	0.76	1.0	2.0
127-18-4	Tetrachloroethene	1	<1.0	U	0.76	1.0	2.0
79-34-5	1,1,2,2-Tetrachloroethane	CCH	<1.0 NJ	YQ	0.54	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	52	104	80 - 119	
Toluene-d8	50.0	49	98	89 - 112	
4-Bromofluorobenzene	50.0	49	98	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	396959	10.92	379991	10.93	
1,4-Difluorobenzene	635965	11.49	504214	11.51	
Chlorobenzene-d5	624357	14.17	534272	14.18	
1,4-Dichlorobenzene-d4	327152	16.42	285596	16.43	

* Values outside of QC limits

Nov 21 2015